

VENDING MACHINE AND COMPUTER ASSEMBLY

CROSS-REFERENCE TO RELATED APPLICATION

This application is a continuation-in-part application of prior application Ser. No. 08/429,583 filed Aug. 17, 1995, now abandoned.

FIELD OF THE INVENTION

The present invention is directed to a vending machine for purchasing merchandise while providing the customer via an internal computer with access to the internet or other on-line computer database and allowing the customer to interface with the internet address. More particularly, the invention is directed to a retrofit door assembly for attaching to an existing vending machine where the retrofit door includes a computer assembly to connect with the internet automatically in conjunction with the purchase of merchandise.

BACKGROUND OF THE INVENTION

Vending machines have been in common use for many years for purchasing a variety of items. These vending machines typically have a plurality of selector buttons or switches to allow the customer to select a specific item. Vending machines have also been produced to display advertising material from an electronic data storage unit at the time of purchase of the item.

Home computers are also in common use today for obtaining vast quantities of information from various databases. There are large numbers of database accessible by home computers through the use of a modem or other cable or telephone connection. In recent years the internet has become widely accessible by home computers for providing information to the user. Internet sites provide new entertainment and other sources of information.

Many vending machines provide vending for cans, bottles, hot and cold drinks in cups, sandwiches, candy, combs and different products. In addition to providing vending, other vending machines allow access to information which is localized and therefore, has limited use.

In recent years, there have been improvements in vending machines, including advertising, and interactive customer communication. For example, three such machines are exemplified by U.S. Pat. No. 4,454,670 to Bachmann, et al., International Patent No. PCT/AU89/00051 to Vogel, et al., and U.S. Pat. No. 4,677,565 to Ogaki et al. These patents disclose vending machines that have prerecorded programs on tape cassette or diskette in a tape or diskette drive of the machine and a screen. The menus from the diskette, displayed on the screen, provide interactive user interface by way instructions, operation and use of the vending machine, advertising, and video games.

The vending machines mentioned above have been successful and have achieved their designed objectives but the amount of information available to the customer is limited by pre-recording.

SUMMARY OF THE INVENTION

The present invention is directed to credit card, bill, and coin-operated vending machines and vending machine doors for purchasing merchandise such as soft drinks in bottles, plastic containers or cans as well as any other item or merchandise which can be purchased through a vending machine. More specifically, the present invention provides a

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A further object of the invention is to provide a vending machine with a camera system to record the live performances of customers to be captured for TV commercial and

These and other embodiments, features and advantages of the present invention will become apparent from the following detailed descriptions in addition to the accompanying drawings.

FIG. 13 shows the screen display scene when No. 2 of FIG. 11 is selected.

Referring to the drawings, the vending machine 10 of the invention includes a front door 100 having a front panel 150.

The item storage unit and dispensing mechanism 156 can be any standard assembly commonly used in vending machines and will not be discussed in detail. Examples of vending mechanisms are disclosed in U.S. Pat. Nos. 4,454,670; 4,677,565; 4,954,697; and 4,380,130 which are hereby incorporated by reference in their entirety. The storage unit and dispensing mechanism is connected to and operated by the computer assembly 158.

The computer assembly 158 includes a video monitor or screen 101, actuating buttons 120, 121 and 112 of the selector panel 160, a key pad 118, trackball 117, CD-ROM drive 116, and a diskette drive 128. The computer assembly 158 is connected to and actuated by the selector assembly 154 such that when the customer selects an item to be purchased the computer is automatically activated to be operated by the customer. In one embodiment of the invention the computer is pre-programmed so that when an item is selected for purchase, the computer automatically connects to a pre-selected internet site or website and displays the information received from the internet site on the video monitor. For example, the computer can be programmed to connect to a website or homepage of the manufacturer of the item purchased, or the website or homepage owner or operator of the vending machine. In further examples, the computer can connect to the website or homepage of a local or national news or sports network or the like. In preferred embodiments, the computer will include a suitable timing device to provide the customer with a predetermined amount of time to view the displayed information and provide interactive communication via the computer. Additional time can be obtained by the user by further payment to the vending machine. In further embodiments, information stored in a suitable data storage unit, such as a CD-ROM can be used for displaying information to the customer on the video monitor. As used herein, the term internet refers to the numerous computer databases and on-line services available for public access for retrieving and/or sending information.

The vending machine door 100 is provided with an escutcheon plate 123 and a flat plastic transparent plastic panel 162 with suitable back lighting and coloring (not shown) configured to display a primary product logo or trademark of the vendor or manufacturer and to increase the visibility of the vendor. In one embodiment of the invention, the door 100 is constructed as a retrofit to an existing vending machine. In this embodiment, the computer assembly 158 and money acceptor 152 are mounted in the door and assembled to cooperate with the existing dispensing mechanism 156 of the vending machine 10.

The vending machine door 100 includes the video graphic screen 101 to provide the visual illustrations in color to enable the customer two-way interactive communication functions. By way of example, the screen 101 may be a flat panel super video graphic adapter active matrix video screen that allows the customer to browse website, homepages, and stored video images at photo realistic images of over sixteen million colors. The screen 101, as will be described later, is also used to display instructions to the customer for operation of the vending machine and to provide information for sales, purchasing and internet operations. When the machine is idle, a suitable vendor message is periodically delivered on screen 101 from the data storage unit of the computer.

The machine door 100 of the present invention further includes two speakers 102 and 103 connected to the com-

The escutcheon plate 123 of the present invention is provided with a credit card reader 105 with indicator 104, a bill reader 107 with indicator 106, coin acceptor 109 with indicator pad 108 indicating the amount of money deposited, a coin return lever 125, a coin return/delivery receptacle 114 for change or return of coin, a blank compact disc and blank diskette delivery port 130, and a purchased item delivery port 115. Selection switches 110, 111, 112, 113 are connected to the computer to display information about any of the available merchandise for sale and for purchasing merchandise. The selector switches correspond to the selection buttons of a conventional vending machine. Selector switch 131 displays information about or purchase of blank diskette or compact disc. The credit card reader and indicator 104, the bill reader and indicator 106, the coin acceptor 109 and indicator 108, the coin return lever 125, the coin delivery receptacle 114, and the merchandise delivery port 115 are similar to those employed in the conventional vending machines.

The present invention may also be provided with the window 133 for pricing information for merchandise, pricing information for accessing the internet and how long the customer may access the internet when a purchase is made, as well as other instructions for the customer. Once the correct amount of money has been deposited for the selected merchandise and a selector switch activated, the homepage of the vendor, the internet access, pricing information, or all the special instructions in connection with the initiation to access websites and homepages are displayed on the monitor 101. The selector switches actuate the dispensing device to dispense the purchased item.

The present invention, as shown in FIG. 1, is provided with a communication network, such as, an antennae, satellite disc 119 with satellite receiver 127 connected to the computer assembly 158 by a cable 129, for automatic transmit-receive data and audio-video signals, and to enable access to the internet through the use of the antennae, a modem, and other necessary hardware and software.

A further embodiment of the present invention, shown in FIG. 2, is similar to FIG. 1 except that the communication network 219 may be a cable connecting the computer to a television signal provided at the vendor's location or a telephone line for the transmit-receive of the data, audio-video signals, and access to the internet. Alternatively, the communication network 219 may be any other suitable transmit-receive circuit. The remaining elements are substantially the same as in the embodiment of FIG. 1 and are identified by the same reference number of the 200 series.

FIG. 3 is a further embodiment similar to FIG. 1 except that FIG. 3 includes the panel with suitable bright light and coloring configured to display the primary product logo or trademark 350 and to increase the visibility of the vendor. The remaining elements are substantially the same as in the embodiment of FIG. 1 and are identified by the same reference number of the 300 series.

Referring to FIG. 4, the interrelationship between the various circuit components is shown. The central computer control unit 400 is connected to and operates the various components of the vending machine. The computer 400 is connected to and controls operation of the display monitor 424 screen which includes a video interface circuit 427. Two-way audio communication functions and the production of messages amplified by amplifier are played on the speakers 420 and 421 and headphones 430. The computer 400 also receives input signals and calculates the payment amount from the credit card acceptor 401, bill acceptor 402 and coin acceptor 403 (collectively identified as amount deposit acceptor 400A) and receives signals and communicates with merchandise selector switches 405, 406, 407 and 408 (collectively identified as merchandise selector switch 400B). A driving means for a coin and change return mechanism 404 and the merchandise storage and dispensing unit 409 are controlled by the computer 400. Laser-disc and CD-ROM drive 415 and 1.44 MB diskette drive 428 (collectively referred to read-write drive 400D) are connected to computer 400 for receiving and storing data and for storing suitable software for driving the computer 400. A memory unit 417 and programmable audio-video message storage unit 416 can comprise of magnetic or optical recording medium or electrically erasable and programmable read-only memory (not shown). In embodiments of the invention, computer 400 incorporates a suitably programmable microprocessor or digital signal processing unit with appropriate interface circuits as known in the art for efficient computer operation and connection to the internet.

The programmable audio-video message storage unit 416 stores all the display names of the merchandise and pricing

When a customer deposits an amount of money into the amount deposit acceptor 400A, the computer unit 400 senses

the input and by means of signals recalled from the programmable audio-video message storage unit 416, checks the amount deposited. For credit card purchase, the computer 400 requests for and checks personal identification number, and records the credit card sales on programmable audio-video message storage 416 using standard hardware and software known in the industry.

When the customer desires to cancel a purchase, the coin return lever 425 is pulled to return the amount to the delivery receptacle 404. This also will cancel the credit card entries in the programmable audio-video message storage 416 and the vending machine returns to an idle state.

When the full payment has been made for the selected merchandise, the computer 400 actuates the monitor 424 to display the pre-selected message which can be, for example, the homepage of the vendor. The computer 400 includes a modem and appropriate operating software for connecting the computer with an internet site. The monitor 424 then displays a series of questions for the customer to interface with the computer. FIG. 7 shows an example of the display inquiry on the monitor 424 which are recalled from the programmed audio-video message storage unit 416. The computer 400 again recalls one of the audio messages stored thereon to accompany the display inquiry in the form of spoken or synthesized words reproduced by the amplifier 419 and through the speakers 410 and 421. By way of example and not limitation, the audio message played on the speakers may be "PLEASE ENTER NUMBER FROM KEYPAD OR CLICK NUMBER USING TRACKBALL OR PRESS MERCHANDISE SELECTOR SWITCH TO SELECT MERCHANDISE."

When the customer selects the merchandise as instructed by the displays on the monitor 424 and through the speakers 420 and 421 the computer 400 senses the action by means of the signal from the keypad 412, or the trackball 410, or from the merchandise selector switch 400B. When the merchandise is selected, the computer 400 accesses the internet provider or website of the manufacturer of the merchandise and displays the audio-visual image advertisement of the merchandise on the monitor 424 as shown on FIG. 8. By way of example and not limitation, the customer can be connected to the website of the manufacturer or distributor for news, sports, and upcoming events. The computer 400 then controls the merchandise dispense mechanism 409 to dispense the purchased item to the merchandise port. The computer then displays the messages on monitor 424 as shown in FIG. 9. The messages are recalled by the computer 400 from the programmed audio-video message storage 416. The displayed messages are accompanied by spoken or synthesized words and music reproduced by the amplifier 419 and through the speakers 420 and 421. By way of example and not limitation, the audio message played on the speakers may be "TO BROWSE VENDOR HOMEPAGE PRESS OR CLICK ONE, TO ACCESS OTHER WEBSITES PRESS OR CLICK TWO, TO END ALL OPERATIONS PRESS OR CLICK THREE."

When the customer selects No. 1 reading from the screen shown in FIG. 9, the computer 400 detects the input signal input from the keypad 412 or trackball 410. The computer 400 then displays the vendor homepage with images, messages and information for advertising and publicity on the monitor 424 as transmitted from the internet provider. The display is accompanied by spoken or synthesized words and music reproduced through the speakers 420 and 421. Using the trackball 410 the customer may browse the vendor homepage for a predetermined time. After the allotted time

2025 RELEASE UNDER E.O. 14176

An additional embodiment of the present invention provides the write drive 400D, camera 423 and microphone 422 to allow the customer a two-way interactive communication functions. By way of example and not limitation, the customer may access a musical studio transmitted to the speakers 420 and 421, select some tracks and download the tracks onto blank compact disc or other recording medium inserted into the read-write drive 400D after depositing a